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Publications

Covid-19 in Otorhinolaryngology Practice: Symptoms and Prevalence at a Tertiary Service

Fernanda Franco Carregosa[1], Joyce Rios Vilela dos Reis[1], Juliana Alves Fernandes[1], Marina Cançado Passarelli Scott[1], Carlos Henrique Lopes Martins[1], Heloisa dos Santos Nunes[2*], Jose Antonio Pinto[3]

[1]Department of the Nucleus for Otorhinolaryngology, Head and Neck Surgery and Sleep Medicine in São Paulo, Brazil

[2]Assistant Physician at the Nucleus for Otorhinolaryngology, Head and Neck Surgery and Sleep Medicine in São Paulo, Brazil

[3]Director of the Nucleus for Otorhinolaryngology, Head and Neck Surgery and Sleep Medicine in São Paulo, Brazil

ABSTRACT

Introduction: The Coronavirus belongs to a respiratory virus's family that causes Severe Acute Respiratory Syndrome (SARS). The manifestations of the Corona virus disease (COVID-19) have a wide clinical presentation, from asymptomatic to severe cases that evolve to septic shock and multiple organ failure. The otorhinolaryngological manifestations commonly include mild symptoms of the infection, such as odynophagia, headache, olfactory and/or taste disorders, among others.

Objective: Evaluate the prevalence of Coronavirus infection in an otolaryngology emergency department during the pandemic period. Methods: A retrospective analysis of medical records in a 6 month period (from June to December 2020), from patients presented with complaints suggestive of Coronavirus infection at the time of care. Those patients were submitted to one of 3 diagnostic methods: RT-PCR, IgM / IgG serology and / or Rapid test. Patients who did not perform the exam or those who did not provide the result, were excluded.

Results: 42 patients (42%) tested negative for COVID-19 with an average symptom duration of 12.28 days (ranging from 2 days up to 5 months) and 58 patients (58%) tested positive, with an average symptom duration of 17.79 days (ranging from 1 day up to 5 months). Coryza was present in 33 patients (56.89%), nasal obstruction in 31 (53.44%), myalgia in 30 (51.72%), olfaction disorder, such as hyposmia and anosmia in 29 (50%), odynophagia in 22 patients (37.93%), headache in 21 (36.2%), dysgeusia in 18.

(31.03%), fever in 16 (27.58%), cough in 12 (20.68%), dyspnea and dizziness in 6 (10.34%), otalgia and dysphonia in 3 (5.17%).

Conclusion: Considering that the clinical condition generally presented is similar to a typical and common disease in this area - infection of several upper areas being the most common - the hypothesis of differential diagnosis between Coronavirus infection, should be raised and investigated.

Keywords: Covid-19; Otorhinolaryngology; Coronavirus

INTRODUCTION

The first confirmed case of infection with the new Coronavirus (COVID-19) occurred on December 31, 2019, in the city of Wuhan, Hubei peninsula, China. The disease, caused by the Coronavirus, named SARS-CoV-2, was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. The disease spread rapidly and caused major impacts on public health worldwide. Until mid-January 2021, 98,794,900 cases were confirmed globally, including 2,124,193 deaths reported to WHO.[1] The Coronavirus belongs to a respiratory virus family that causes Severe Acute Respiratory Syndrome (SARS), and has been linked to other outbreaks in the past two decades, for example the 2002 outbreak in China and the 2012 surge in the Middle East. Due to its transmission through droplets and aerosols, Otorhinolaryngology has become one of the medical specialties most involved with the disease in the current scenario.

The severe health emergency makes the collection and analysis of data complex, and so, this study presented the same limitations that so many others encountered during research related to this condition.[2-5] The first limitation is due to the lack of a precise and universal definition of clinical manifestations.

The manifestations of COVID-19 have a vast clinical presentation, from asymptomatic to severe cases that might evolve to septic shock and multiple organ failure.[6-15] In general, otorhinolaryngological related symptoms are common in this infection, especially in mild and moderate cases of the disease.[4] In a literature review including 1773 positive real-time reverse transcriptase polymerase chain reaction (RT- PCR) COVID-19 patients, El-Anwar et al. reported that the most commonly encountered symptoms were odynophagia and headache.[5] Olfactory and/or gustatory disorders also obtained a high prevalence, 85% and 88.8% of cases respectively, as shown by Lechien et al., in his article with 417 patients with positive RT-PCR tests for SARS-CoV-2.[2]

Several diagnostic tests are available at the moment.[16] Currently, the test with the highest specificity for detecting SARS-CoV-2 is the RT-PCR and the test is therefore recommended for the diagnosis.[4] However, some factors, such as inadequate collection techniques, viral load and collection time since exposure, might influence the performance of the RT-PCR test, contributing to false-negative results.[17]

The serological tests for the detection of SARS-CoV-2 specific antibodies, including immunoglobulins G (IgG) and M (IgM), are generally used as supplementary methods, since they provide information on recent or previous infections.[17]

As the available studies on the manifestations of COVID-19 related to otorhinolaryngological practice are still scarce in the literature, the aim of the present study was to evaluate the prevalence of SARS-CoV-2 infections in an Otorhinolaryngology emergency department during the pandemic period.

METHODS

To evaluate the prevalence of patients with COVID-19 in a private tertiary emergency care service in Otorhinolaryngology in the city of São Paulo, Brazil, a retrospective analysis of medical records was carried out in the period of 6 months (from June to December 2020), which at the time of the service had complaints suggestive of SARS-CoV-2 infection, that is, patients with one or more symptoms such as coryza, headache, fever, myalgia, fatigue, dyspnea, dysphonia, odynophagia, hyposmia, anosmia, dysgeusia and otalgia. Those patients were submitted to one of the 3 diagnostic methods: RT-PCR, IgM/IgG serology and/or Rapid test. It was conducted the mean and median between ages, sex and patients with any positive tests that were performed, and the results were distributed in charts. Exclusion criteria were patients who did not undergo the exam or who did but did not provide the result.

RESULTS

A retrospective analysis of 151 medical records of patients treated in a 6 month period (from June to December 2020) was performed in a private tertiary emergency care service in Otorhinolaryngology in the city of São Paulo, Brazil. Of these, 93 patients were female (61.5%) and 58 were male (38.4%). The mean age was 38.93 years and the median was 40 years, with a standard deviation (SD) of ± 13.44. Of the 151 patients presented with symptoms suggestive of infection with the new Coronavirus, 24 did not take any test to detect the disease and 27 were tested but did not report the result. Therefore, 51 patients were excluded and 100 patients were included in this study.

The inclusion criteria were patients, who underwent one or more tests to detect COVID-19, including RT-PCR using nasal and oral swab, IgM/IgG serology and rapid test for SARS-CoV-2. Of the 100 patients analyzed, 42 patients (42%) tested negative for COVID-19 with an average symptom duration of 12.28 days (ranging from 2 days to 5 months) and 58 patients (58%) tested positive, with an average symptom duration of 17.79 days (ranging from 1 day to 5 months). Of the positive tested patients, 19 had comorbidities such as Systemic Arterial Hypertension (7%), Diabetes Mellitus (3%), Dyslipidemia (3%), Asthma (2%), Obesity (1%), Depression (1%), Fibromyalgia (1%) and Thrombosis (1%), as shown in Figure 1A. The main symptoms of this group are illustrated in Figure 2A, and comprised of: coryza (56.89%), nasal obstruction (53.44%), myalgia (51.72%), olfactory disorder such as hyposmia and anosmia (50%), odynophagia (37.93%), headache (36.2%), dysgeusia (31.03%), fever (27.58%), cough (20.68%), dyspnea (10.34%), dizziness (10.34%), otalgia and dysphonia present in 3 patients (5.17% each).

Among the 58 patients who tested positive for COVID-19, 38 (38%) obtained a positive result only through the RT-PCR test, 8 (8%) obtained a positive result through positive IgM/IgG serology alone, 5 patients (5%) tested positive through RT-PCR and IgM/IgG serology, 3 (3%) tested positive through RT-PCR but negative through IgM/IgG serology, 3 patients (3%) had a positive result through IgM and IgG serology, but negative trough RT-PCR test and 1 patient (1%) had a positive result only through the rapid test for COVID-19.

Of the 42 patients who tested negative for COVID-19, 20 had comorbidities such as: Systemic Arterial Hypertension (7%), Depression (2%), Dyslipidemia (2%) and 1% of patients with Asthma, Obesity, Diabetes, Epilepsy, Hypothyroidism, HIV, Osteoporosis, Thrombocytopenia and Smoking, as shown in Figure 2A.

The main symptoms of this group were: coryza (57.14%), odynophagia (50%), nasal obstruction (45.23%), headache (42,85%), myalgia (26.19%), fever (23.80%), olfactory disorder, such as hyposmia and anosmia (19%), dysgeusia (19%), cough (16.66%), otalgia (14.28%), dyspnea, dizziness and dysphonia present in 2 patients (4.76% each), as illustrated in Figure 2B.

Of the 42 (42%) patients who had a negative result for COVID-19, 34 patients (34%) had a negative test only through RT-PCR, 4 patients (4%) had negative IgM and IgG serology alone, and also, 4 (4%) had a RT-PCR exam and an IgM and IgG serology negative for COVID-19, as illustrated in Figure 3.
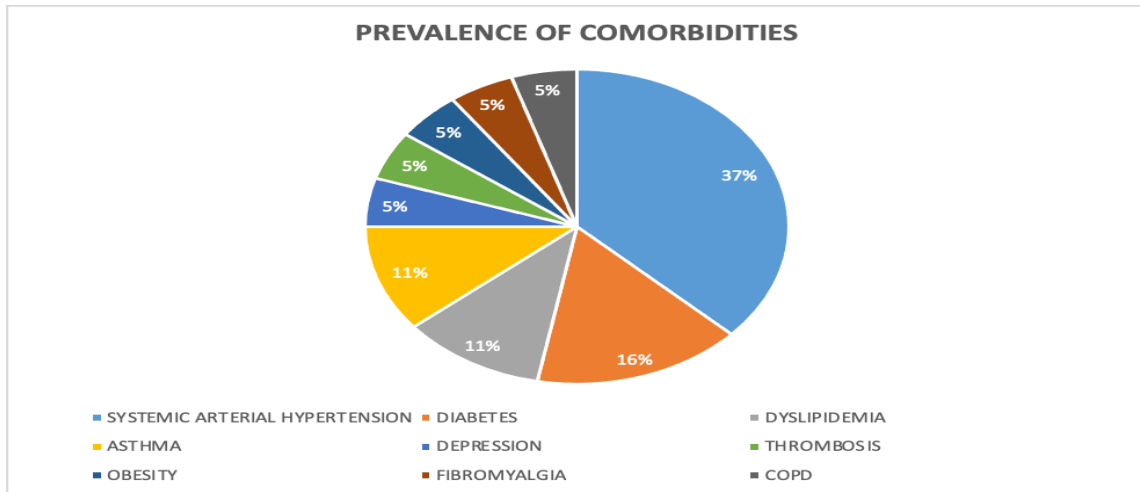

Figure 1A: prevalence of comorbidities in cases of positive SARS-CoV2 patients.
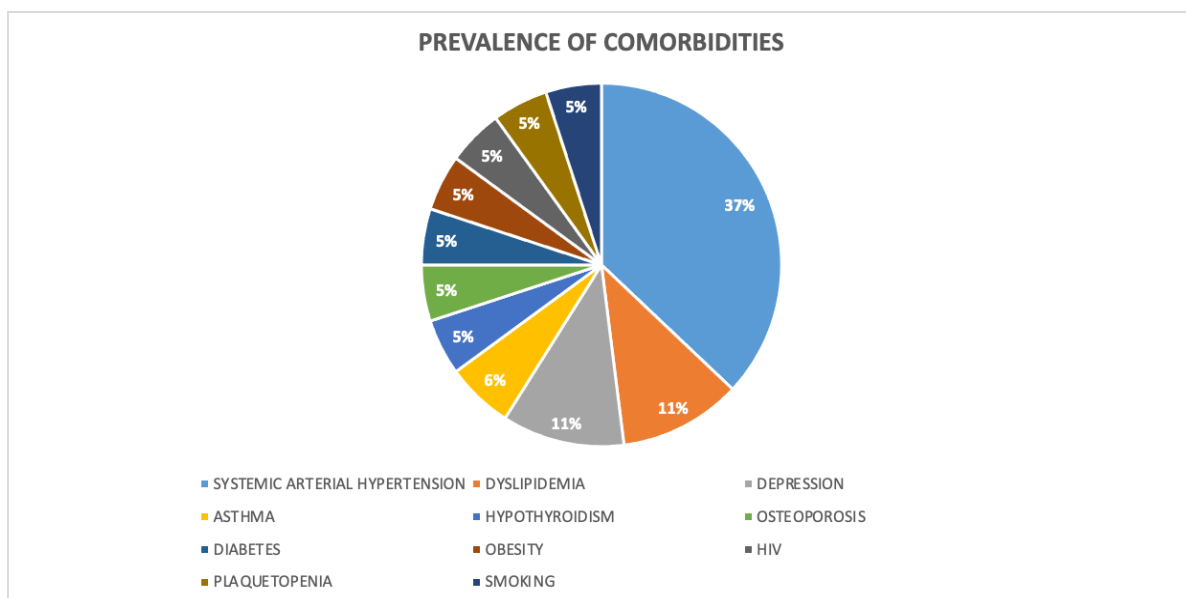

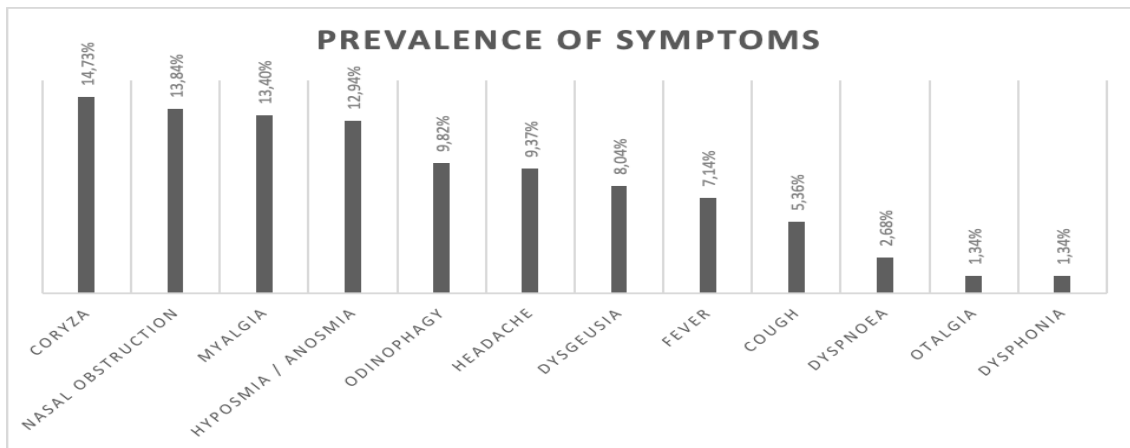**Figure 1B:** Prevalence of comorbidities in negative SARS-COV2 patients.

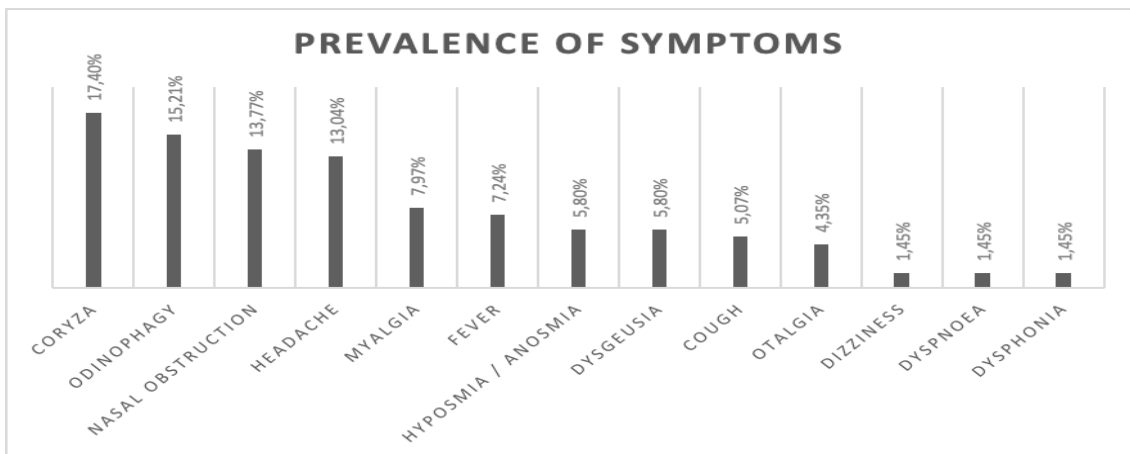**Figure 2A:** Prevalence of symptoms in positive SARS-CoV2 patients.

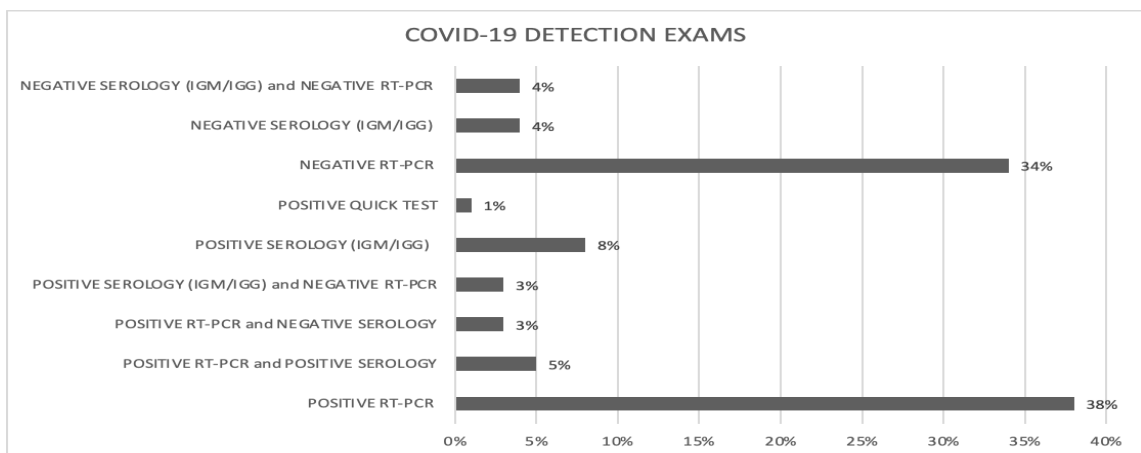**Figure 2B:** Prevalence of symptoms in negative SARS-COV2 patients.

Figure 3: Prevalence of SARS-CoV2 detection exams perfomed on patients.

DISCUSSION

As it is a new disease, there are still more questions than answers for COVID-19 in the clinical and therapeutic scope. The care of patients with otorhinolaryngological complaints poses a particular challenge in this context, given that the symptoms shown are frequently indistinguishable from other acute respiratory diseases.[12] According to the clinical current studies published, the most observed manifestation-in the mild and moderate stages-of the disease in question consists of fever, dry cough and fatigue.[2] Although such presentations are similar to countless other viral infections, through our work we have tried to more clearly elucidate which COVID-19 symptoms are most frequent in a Otorhinolaryngology general emergency facility.

According to Lechien et al., in a study carried out in Belgium with patients with mild to moderate SARS-CoV-2 infection, the most common systemic symptoms were cough and myalgia, while facial pain and nasal obstruction were the ear, nose and throat (ENT) related symptoms most associated with the disease.[2] On the other hand, in our study, rhinorrhea and nasal obstruction were the most prevalent ENT related symptoms, while myalgia and headache were the most common systemic symptoms. Also, in contrast to the results found here, in an article published by Elibol et al. [7], tinnitus, gingivitis, sudden hearing loss, Bell's palsy and hoarseness can be seen in COVID-19, albeit rarely.[7] Such symptoms were not described in the patients in our sample.

Another point to be discussed is that the prevalence of olfactory dysfunction in patients affected by SARS-CoV-2 infection has gained notoriety in the recently published literature. The data we found related to such dysfunction (hyposmia/anosmia) are in agreement and, therefore, must be accounted as a factor to be questioned during the anamnesis of patients who might have COVID-19.

We have not found any large studies on the prevalence of comorbidities in cases of mild or moderate infection and, therefore, our data are insufficient for comparisons in this regard. Additionally, positive results for Coronavirus infection were slightly more predominant in females and young patients, in accordance to the publications used as references for this discussion.[5,7]

Finally, it is notable that many mild cases that passed the emergency room were disregarded due to limited symptomatology, or even due to similarity with other diagnoses that also affect the upper airways, such as rhinitis and sinusitis. So, we had significant limitations in this study, akin to those presented by similar studies. We must consider the fact that the clinical hypothesis and investigation are usually raised in view of the symptoms reported by the patient, so asymptomatic cases that went through our emergency room were not included in the sample. In addition, the diagnosis of COVID-19 is based mainly on the RT-PCR test, and its sensitivity varies from 60% to 97% according to reports. Even accepting the circumstance that the inadequate sample collection can decrease the accuracy of the test, we consider that the actual number of COVID-19 cases was higher than reported, but sadly some cases went undiagnosed and thus were not studied in greater depth.[5]

In addition, it is important to remark that due to the high viral density present in the nasopharynx, oral and nasal cavities of patients with SARS-CoV-2, basic ENT physical examination puts the attending physicians at greater risk of exposure to the disease.

CONCLUSION

Based on what has been demonstrated, it is important to analyze the symptoms and otorhinolaryngological complaints of patients possibly positive for COVID-19 infection, since in this study we proved that the disease started to be routinely present in the offices of this medical specialty. Considering that the clinical presentation of the studied disease is generally similar to most upper respiratory infections commonly treated by otorhinolaryngologists, the hypothesis of differential diagnosis between coronavirus infection should be raised and investigated.

Future epidemiological and clinical studies should elucidate the mechanisms underlying the presentation of these symptoms in the face of the pandemic.

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